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NURSING BOTTLE CONSTRUCTION AND ASSEMBLY

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No. OF CLAIMS 2

NURSING BOTTLE CONSTRUCTION AND ASSEMBLY

Disposable nursing containers have come into rather extensive use in recent years and have the advantage of minimizing sterilization of formula containers and nursing bottles for reuse in that these containers may be discarded after feeding. There are various types of such disposable nursing containers which include a container body of thin, flexible and retractile plastic material which is relatively inexpensive and so disposable after a single use. In one form of such containers, the open end of the collapsible bag or container is attached between a clamping ring and the external surface of an adaptor to which a nipple is suitably secured. In another type of such containers, the open end of the bag is attached between the nipple adaptor and the interior end surface of an outer container or sleeve serving as a rigid holder for the flexible bag and formula disposed therein. In still another form of such containers, the nipple and flexible bag may be formed integrally



with one another and the container pre-filled with formula in sterile condition for subsequent dispensing thereof.

According to the present invention, an object is to provide an integrally formed collapsible bag and nipple annular adaptor in
5 sterile condition for subsequent filling with formula and nipple attachment for dispensing.

Another object of the invention is to provide a bag and adaptor assembly of the above type wherein the bag may be collapsed within the confines of the adaptor as a small unit which may be
10 combined with others in a multiple unit package for retail sale.

A further object of the invention is to provide a bag and adaptor assembly substantially of the above type wherein the adaptor is further configured for mounting within a more rigid holder which may be in the form of a sleeve enclosing the formula
15 filled bag therewithin.

The particular invention herein, in its broadest aspects, is to provide a preform as an intermediate article of manufacture from which to form a disposable nursing container assembly. The preform includes an annular nipple adaptor with means for attachment
20 of a nipple thereto. A plastic wall portion is provided integral with the nipple adaptor and closes the passage therethrough. The wall portion is of sufficient thickness for subsequent localized heating and shaping into a collapsible bag remaining integral with the adaptor and pendant therefrom.

25 In the accompanying drawing:

Fig. 1 is an exploded view showing the various parts of the nursing container and holder;

Fig. 2 is a view showing a multi-unit package of sealed and sterile nursing containers with the bags collapsed within respective
30 adaptors;

Fig. 3 is a view showing the nursing container assembled to a holder with the seal being removed for pouring the formula to extend the bag to the dotted line position within the

holder; and

Fig. 4 is a view showing the preform in diagrammatic association with mold parts into which the plastic material is shaped to form the bag.

5 With reference to Fig. 1 of the drawing, the various parts of the assembly are shown separated from top to bottom as a conventional nipple 10; a sealing closure 12 for the outer end of a nipple adaptor 14 which has a collapsible bag 16 integral therewith for disposition within a holder 18. The nipple adaptor 14 is in the
10 form of an annular sleeve or collar having external screw threads 20 or other surface configuration for attachment to a similar internal configuration on the skirt of the nipple. An annular sealing ledge 22 projects outwardly from the adaptor below the threads and an annular snap ring 24 is disposed therebelow for snap engagement
15 with a cooperating snap groove 26 opening inwardly of the upper open end of the holder 18.

 As illustrated, the bag 16 is formed integral with the upper end of the adaptor, as will be hereinafter described, and extends therethrough to the pendant position of Fig. 1 with the interior
20 thereof suitably sterilized and collapsed within the confines of the adaptor, the upper end of which is then sealed by the closure 12 affixed thereto. In such sterile condition, this assembly with the bag collapsed within the adaptor may be associated with others as a
25 multi-unit package shown in Fig. 2. Such a multi-unit package may be sold separately, or at least in the first instance, it may be
30 sold with a holder 18 and even packaged therein.

 For feeding use, an adaptor and bag may be removed from the package and associated with the holder by snapping the ring 24 of the adaptor into the groove 26 of the holder 18, as shown in Fig.
30 3. The invention contemplates that the adaptor 14 may be provided

with internal threads that cooperate with an externally threaded holder 18. The sealing closure 12 is then removed and the formula poured through the open end of the adaptor to reposition the bag 16 to depend therefrom as also shown in the dotted line position of Fig. 3. The formula is thus admitted to the sterile or aseptic bag and the nipple 10, previously sterilized, is applied to the threads 20 or other surface configuration on the adaptor and the assembly is ready for feeding. The holder 18 while illustrated as frusto-conical to house and support the filled bag, may have other suitable shapes. The holder may be held by the mother or other attendant, or it may be supported by an infant if of that age. Since the holder is of relative permanence, it may be variously decorated, ribbed and the like for attractiveness. After feeding, the ledge 22 serves as a finger gripping surface to remove the adaptor and bag from the holder and after removal of the nipple 10, the adaptor and plastic bag may be discarded as a disposable unit, leaving the holder for association with another unit at the next feeding.

With reference to Fig. 4 which is diagrammatic, the nipple adaptor 14 and domed plastic material 30 closing one end thereof are molded as by injection molding, integrally from suitable plastic materials as a preform with the thread 20, ledge 22 and snap ring 24 formed on the adaptor collar. The thickness of the plastic material of the dome or other configuration across the adaptor is such that it can be reshaped and stretched into the collapsible plastic bag portion. Thus, the assembly of adaptor and plastic closing wall 30 provides an intermediate article of manufacture from which the above described nursing container is made. Thus, for example, the preform can be associated with mold parts 32, 32a (Fig. 4) at the open end thereof, with the interior surfaces of the mold conforming to the configuration of the bag. The material of the plastic closure or dome 30 may be heated in known manner, as by radiant heat, and without heating of the adaptor which has been preformed as indicated.

When the material of the dome is sufficiently heated, a conventional thermoforming plug is pushed against the dome in the direction of the arrow X forming the material through the adaptor to an initial position within the mold to serve as a parison blank which is then

5 shaped to the bag configuration 16 as shown in dotted lines. This shaping can be accomplished by differential pressure as, for example, by air under pressure through the forming plug or by vacuum applied within the mold. After cooling and removal, the finished bag and adaptor will be as shown in Fig. 1 with the bag lining the

10 interior surface of the adaptor collar but with other molding techniques, the plastic material closure of the preform could be initially associated with the adaptor at other locations as across the bottom or an intermediate portion thereof.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A preform as an intermediate article of manufacture from which to form a disposable nursing container assembly, and comprising an annular nipple adaptor with means for attachment of a nipple thereto, and a plastic wall portion integral with the nipple adaptor and closing the passage therethrough and of sufficient thickness for subsequent localized heating and shaping into a collapsible bag remaining integral with the adaptor and pendant therefrom.

2. A preform as claimed in Claim 1, wherein the plastic wall portion is dome shaped across the upper end of the adaptor.



Fig. 1

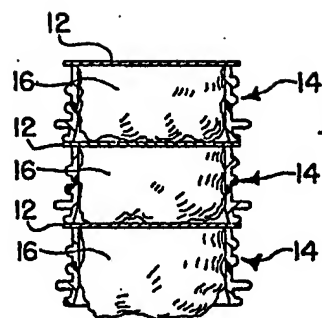
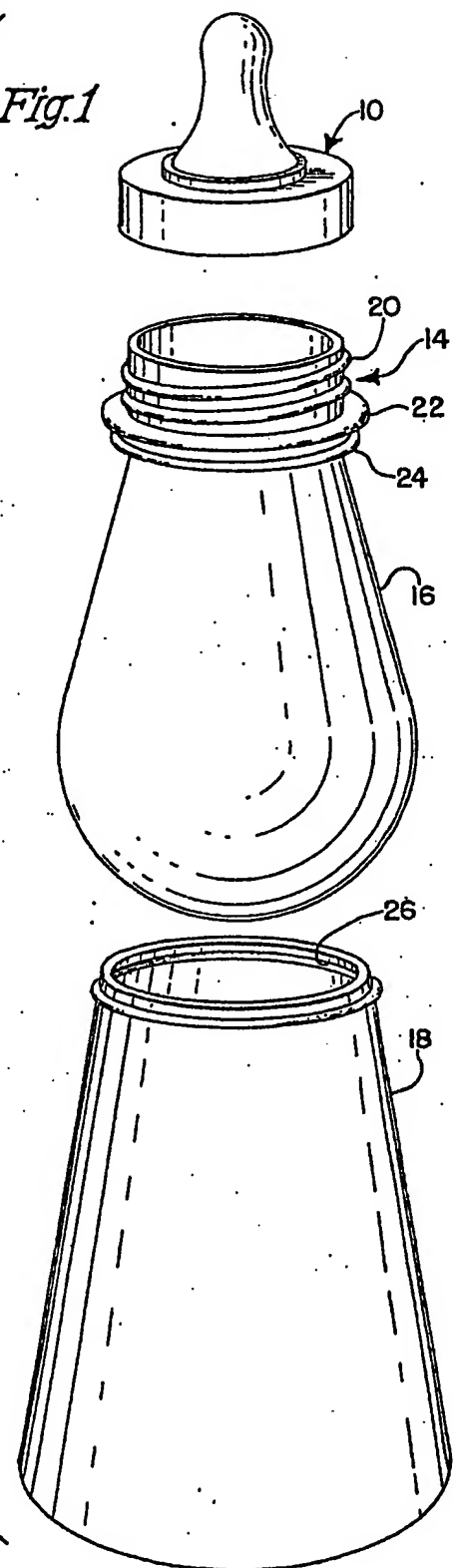
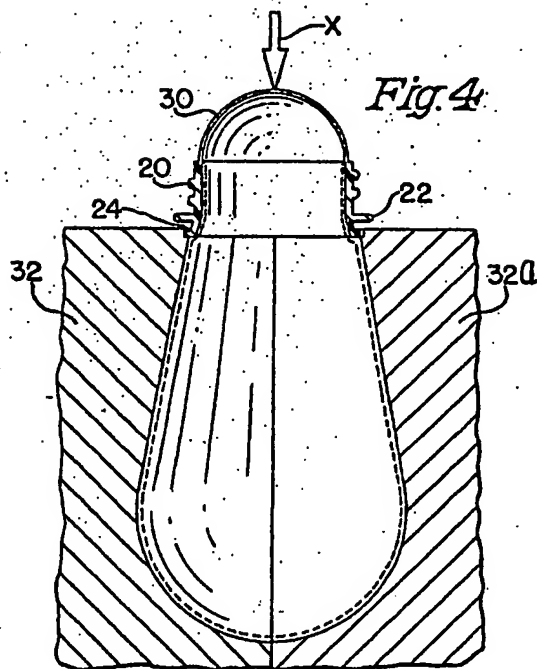
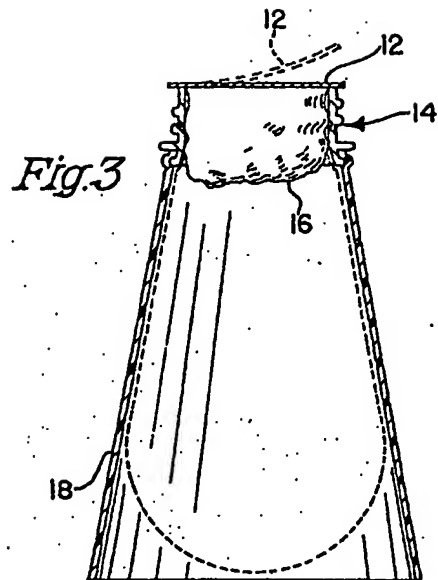


Fig. 2

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